Heidelberg University: Long-Term Water Quality Monitoring in the Western Lake Erie Basin Watershed

David Baker, NCWQR Director Emeritus

1. **Nutrient and suspended sediment tributary loading studies.**
2. **Pesticide tributary loading studies.**
3. **Biological and habitat assessment studies in maintained drainage ditches.**
4. **Swat modeling.**

1. Nutrient and suspended sediment tributary loading studies.

- 10 stations
- From 2-37 years of record
- Drainage area from 4.2 to 6,330 sq. mi.
- Automatic samplers at all stations except the River Raisin (daily grabs)
- Sampling frequency: 1-3 samples per day depending on flow.
- Data available at Tributary data download section of the NCWQR website.

Parameters include: suspended sediments, total phosphorus, dissolved reactive phosphorus, nitrate, nitrite, ammonia, total Kjeldahl nitrogen (TKN), chloride, sulfate, silica and conductivity.

The website for Heidelberg University's National Center for Water Quality Research (NCWQR) is http://www.heidelberg.edu/ncwqr.

2. Pesticide loading studies.

- **Four stations with automatic samplers (Maumee, Sandusky, Honey and Rock Creek)**
- **One to three samples per day during pesticide runoff season (~April 15-August 15)**
- **Two samples per month for remainder of year.**
- **Program started in early 1980s.**
- **Analysis methodology: GC-MS**

Pesticides Included in current program

- Acetochlor
- Alachlor
- Atrazine
- Butylate
- Carbofuran
- Chlorpyriphos
- Cyanazine
- *EPTC*
- Ethoprop
- Fonofos
- Metolachlor
- Pendimethalin
- Simazine
- Trifluralin

<u>Pesticide Breakdown Products</u>

DEA

DIA

Data available upon request to NCWQR

3. Biological and habitat assessment studies in maintained drainage ditches (Dr. Ken Krieger).

Ditch Evolution Following Dip-Out

Boyd-Feasel Ditch, Seneca Co.
5 June 2008

Boyd-Feasel Ditch, Seneca Co.
19 August 2008

Boyd-Feasel Ditch, Seneca Co.
11 August 2009

Boyd-Feasel Ditch, Seneca Co.
23 June 2010

Part of an EPA Region 5 Targeted Watershed Grant to the NCWQR

- 20 stations
- Sandusky Watershed
- Fish, invertebrates, QHEI
- 3-4 successive years at each station
- 2 collections per year (late spring, early fall)

4. Swat modeling – Dr. Rem Confesor (Part of 3 grants)

Status of SWAT implementation

Watershed	*"Subs"*	*"HRUs"*
Rock Creek 34.6 sq. mi.	168	471
Honey Creek 149 sq. mi.	567	567
Sandusky Watershed 1,251 sq. mi.	373	719
Maumee Watershed 6,330 sq. mi.	229	1,378

For more information regarding the SWAT Modeling programs of the NCWQR, contact Dr. Rem Confesor, rconfeso@heidelberg.edu.